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09/678,330	10/03/2000	Keizo Kimura	2016-0165P	4810

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EXAMINER
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BALASUBRAMANIAN, VENKATARAMAN

ART UNIT	PAPER NUMBER
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1624

DATE MAILED: 10/22/2003

19

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/678,330

Applicant(s)

KIMURA ET AL.

Examiner

Venkataraman Balasubramanian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

Applicants' response, filed on 7/29/2003 is made of record.

Claims 1-10 are pending.

In view of applicants' response, the following apply.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling rapid solubility at 40 °C and lack of deposit upon subsequent cooling to 0 °C for compounds I-1, I-2 and I-4 at 20 g per 100mL does not reasonably provide enablement for variously substituted structurally diverse compounds with long alkyl chain and various metal salts other than alkali metal. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. The following apply

Representative examples of variously structurally diverse compounds generically embraced in the invention are not shown to possess the solubility characteristics asserted as important feature, which distinguishes the instant compounds over known prior art compounds. Instant genus of triazinyl-diaminostibene compound embrace compounds with substituents bearing plethora of structural cores such as long chain alkyl aryl etc and functional groups and other groups permitted at instant L1, L2, R<sup>11</sup>,

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$R^{12}$ ,  $R^{21}$ , and  $R^{22}$  variables along with various M which include alkaline earth metals such as Ca, Ba, Sr etc. There is no reasonable basis for assuming that the myriad of compounds embraced by the claims will all share the same solubility profile since they are so structurally dissimilar as to be chemically non-equivalent and there is no basis in the prior art for assuming the same. In fact, the results shown on page 27-28 clearly shows that structurally related compounds vary in their dissolution time and subsequent deposition upon cooling. For example the instant compound I-1 differs from comparison compound a in having only an additional hydroxyl in the propyl chain yet as asserted by applicants, the comparison compound is not suitable for the intended utility. If such a subtle change in structure can affect the solubility characteristics, there is no basis to assume that all the instant compounds would comply with the solubility characteristics asserted essential for the intended utility. Moreover, salts of Ca, Ba, Sr etc are in general less soluble than the corresponding alkali metal salts, and there is no reasons to expect that the sulfonic acid salts of these metals would also behave in the same manner as asserted in the specification. Note In re Surrey 151 USPQ 724 regarding sufficiency of disclosure for Markush group. Also see MPEP 2164.03 for enablement requirements in cases directed to structure-sensitive art.

Note Ex parte Gelles 22 USPQ 2nd 1318, especially the following quote: " The evidence relied upon also should be reasonably commensurate in scope with the subject matter claimed and illustrate the claimed subject matter " as a class" relative to prior art subject matter."

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Thus, factors such as “sufficient working examples”, “the level of skill in the art” and “predictability”, etc. have been demonstrated to be sufficiently lacking in the instant case for the instant method of use. In view of the breadth of the claims, the chemical nature of the invention, the unpredictability of solubility of various metal salts of sulfonic acid in general, and the lack of working examples regarding the solubility of representative examples of the claimed compounds, one having ordinary skill in the art would have to undergo an undue amount of experimentation to use the instantly claimed invention commensurate in scope with the claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buell US 3,309,363 in view of Deguchi et al. US 5,395,742 for reasons of record. To repeat:

**1. Determining the scope and contents of the prior art:**

Buell teaches 4,4'-Bis 1,3,5-triazinylamino)stilbene-2,2'-disulfonic acid bearing dihydroxypropylamino groups for use as optical brightener. See formula shown on col.1 and example 1 on col. 3 for making the compound. Note the side chain, dihydroxypropylamino, is same as claimed herein.

**2. Ascertaining the differences between the prior art and the claims at issue:**

Buell differs from the instant claims in not teaching or suggesting sulfoethylamine substituent on the triazine ring.

**3. Resolving the level of ordinary skill in the pertinent art:**

The secondary reference, Deguchi et al. teaches several diaminostilbene compounds for photographic imaging. See formula I on col. 2 and note the definition of L1 and L2. Note on col. 3 lines 10-16 , Deguchi et al. teaches four or more substituents on L1 and L2. Also note L1 and L2 can be N R2 R3 which permits alkylamine with

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hydroxyl groups and sulfo groups as required herein. See col. 4-5 for various preferred embodiments and tables on col. 6-7 and 11 for compounds made.

Thus the secondary reference teaches sulfoethylamine substituent on the triazine ring.

**4. Considering objective evidence present in the application indicating obviousness or nonobviousness:**

Moreover, the processes taught by all these references are analogous.

Starting materials and the final products taught by these two references are analogous in that they are cyanuric halide, substituted amines and 2,2-diaminostilbene sulfonic acid. Thus one having ordinary skill in the art at the time of the invention was made would have been motivated to combine both the primary and secondary references and employ the process taught by these prior art to the starting materials and reactants including those with aminoalkyl with two or more hydroxyl and sulfoalkylamino and expect to obtain the desired product because he would have expected the analogous starting materials and reactants react similarly. It has been held that application of an old process to an analogous material to obtain a result consistent with the teachings of the art would have been obvious to one having ordinary skill. Note *In re Kerkhoven* 205 USPQ 1069.

Applicants should note that this rejection is similar to the one made in the previous office action except for the format which now includes Wands Factors explicitly to show the factual basis for this rejection. This is in response to applicants' repeated assertion that examiner had not made a prime facie case.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crounse et al. US 3,193,548 in view of Deguchi et al. US 5,395,742 for reasons of record. To repeat:

**1. Determining the scope and contents of the prior art:**

Crounse et al. several triazinyl stilbene compounds with hydroxyalkoxyalkylamino side chain in the triazine ring as optical brightening agents. See formula I on col. 1 and note the definition of Y1 and Y2. Note the teachings include equivalency of hydroxyalkylamino with hydroxyalkoxyalkylamino. See line 44 for a formula which is a side chain generically claimed herein. See col. 2-4 for preferred embodiments and col. 5-14 for examples of compounds made.

**2. Ascertaining the differences between the prior art and the claims at issue:**

Crounse et al. differ from the instant claims in not teaching sulfoalkylamino side chain in addition to hydroxyalkoxyalkylamino.

**3. Resolving the level of ordinary skill in the pertinent art:**

The secondary reference, Deguchi et al. teaches several diaminostilbene compounds for photographic imaging. See formula I on col. 2 and note the definition of L1 and L2. Note on col. 3 lines 10-16, Deguchi et al. teaches four or more substituents on L1 and L2. Also note L1 and L2 can be N R2 R3 which permits alkylamine with hydroxyl groups and sulfo groups as required herein. See col. 4-5 for various preferred embodiments and tables on col. 6-7 and 11 for compounds made.

Thus the secondary reference teaches sulfoethylamine substituent on the triazine ring.



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**4. Considering objective evidence present in the application indicating obviousness or nonobviousness:**

Moreover, the processes taught by all these references are analogous.

Starting materials and the final products taught by these two references are analogous in that they are cyanuric halide, substituted amines and 2,2-diaminostilbene sulfonic acid. Thus one having ordinary skill in the art at the time of the invention was made would have been motivated to combine both the primary and secondary references and employ the process taught by these prior art to the starting materials and reactants including those with aminoalkyl with two or more hydroxyl, hydroxyalkoxyalkylamino, and sulfoalkylamino and expect to obtain the desired product because he would have expected the analogous starting materials and reactants react similarly and would yield product that would have the same utility .

Applicants should note that this rejection is similar to the one made in the previous office action except for the format which now includes Wands Factors explicitly to show the factual basis for this rejection. This is in response to applicants' repeated assertion that examiner had not made a prime facie case.

Applicants' argument to overcome the above two rejections is not persuasive.

Most of the applicants' arguments were same as in paper # 5, 7, 11 and 15. Examiner had clearly addressed them in paper #6, 8, 13 and 16. In addition, during the interview, Examiner clearly indicated that the above two rejections were proper. To summarize:

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Contrary to applicants' urging that Buell teaches two hydroxyalkylamino substituents on the triazine ring and as emphasized by the applicants, which impart some troublesome properties. Deguchi et al. teaches, as noted above, both sulfonylalkylamino group as required by the instant claims and hydroxyalkylamino groups on the triazine ring. There is a clear equivalency teaching of these two groups. Hence one trained in the art would have been motivated to combine teachings of both the primary and secondary reference and expect to overcome the trouble some properties and obtain product of desirable properties for the utility taught.

The same reasoning applies to the second 103 rejection based on Crounse et al in view of Deguchi et al.

Again, contrary to applicants' urging Crounse et al. teaches hydroxyalkoxyalkylamino group on triazine with equivalency teaching of one or more hydroxyl on alkylamino group and the secondary reference, as noted above, teaches both sulfonyl amino group as required by the instant claims and hydroxyalkylamino groups on the triazine ring. There is a clear equivalency teaching of these two groups. Hence there is motivation for one to combine the primary and secondary references and expect to obtain desirable product for the utility taught.

Hence the above two rejections art proper.

As for the declaration and comparative studies on page 27 and 28, the following apply:

1. First of all. Applicants should note that obviousness type 103 rejection requires a proper factual inquiry and objective evaluation of any evidence presented to obviate the

obviousness. Examiner had clearly established the factual basis for these rejections as noted in the previous office actions and the above clear-cut Wands factor analysis. The issue then being is it possible to evaluate objectively the evidence presented by the declaration.

Declaration and specification on page 27, line 36 and page 28 state "some insoluble remained in 300 sec."

As recited, it is not possible to accept the evidence and make objective evaluation. It is not clear how much material remained out of the 20 gram of compound. Would increase in dissolution time resolve the issue? Would increase in amount of water solve the problem? Would increase in temperature along with all the above factors resolve the problem?. There is no teaching or suggestion in the specification what are the critical parameters. Thus one trained in the art would not be able to make an objective evaluation of the above statement that "some insoluble remained in 300 sec."

2. Secondly, in response to examiner's comment that the declaration of Takanori Hioki was considered but was deemed as improper and nonconclusive, applicants have asserted that a) rapid solubility and b) lack of deposits after storing at specified temperature are essential for compounds used in the photographic art. Reading specification, it appears that both of these have to be met with. But applicants have not clearly established the criteria of solubility and storage parameters. It is not clear what concentration, what temperature and what time duration are critical. Thus, one trained in the art may use lower concentration instead of 20 g in 100ml water used in the

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comparative studies to circumvent any solubility/ storage problem if any and applicants have not shown why one would not do so.

3. Thirdly the declaration or the specification on page 27-28 has shown that the unexpected/superior properties applicants assert are applicable to all compounds of the genus embraced in the instant invention. Note Ex parte Gelles 22 USPQ 2nd 1318, especially the following quote: " The evidence relied upon also should be reasonably commensurate in scope with the subject matter claimed and illustrate the claimed subject matter " as a class" relative to prior art subject matter."

4. Finally, the comparative results should be evaluated for objective evidence as a whole but not in part. Specification on page 28 shows for instant compound I-4 two set of results, which vary in solubility time. It is not clear why such variation is seen and whether such variations in dissolution time are often common for same compound under identical conditions.

5. Applicants also seem to emphasize "30 sec" dissolution time but the examples on page 27-28 seem to permit variation in dissolution time and thus dissolution time does not appear to be a critical factor.

Hence, base on above reasons, the two 103 rejections are proper and are maintained.

### **Conclusion**

Any inquiry concerning this communication from the examiner should be addressed to Venkataraman Balasubramanian (Bala) whose telephone number is (703) 305-1674. The examiner can normally be reached on Monday through Thursday from

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8.00 AM to 6.00 PM. The Supervisory Patent Examiner (SPE) of the art unit 1624 is Mukund Shah whose telephone number is (703) 308-4716.

The fax phone number for the organization where this application or proceeding is assigned (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

  
Venkataraman Balasubramanian

10/17/2003